

**Table 30. Iron and Steel Industries Energy Consumption**

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Value of Shipments (billion 1996 dollars)	70.53	65.34	69.70	72.56	72.05	72.99	76.20	78.36	78.57	78.73	78.90	78.46	78.80
Energy Consumption (trillion Btu)													
Distillate Oil	4.4	4.0	4.1	4.2	4.1	4.1	4.2	4.3	4.2	4.1	4.1	4.1	4.0
Residual Oil	21.4	26.2	27.5	25.7	23.5	23.4	22.3	22.1	21.3	20.6	20.1	19.8	19.7
Other Petroleum 2/ Petroleum Subtotal	7.5 33.3	7.3 37.5	7.2 38.7	7.0 36.9	6.8 34.5	6.7 34.2	6.5 33.0	6.4 32.7	6.2 31.7	6.1 30.8	5.9 30.1	5.8 29.6	5.6 29.4
Natural Gas	394.1	364.2	375.1	380.2	373.3	370.0	376.7	378.9	375.1	371.1	366.9	360.5	356.4
Metallurgical Coal	660.2	641.6	623.3	605.6	588.4	571.8	555.7	540.0	524.8	510.0	495.6	481.6	468.0
Net Coke Imports	37.3	31.0	36.0	35.6	31.8	30.7	33.1	34.5	34.5	34.6	34.1	32.9	32.4
Steam Coal	63.7	62.6	62.1	61.1	59.8	58.8	58.1	57.4	56.5	55.7	54.8	53.9	53.1
Coal Subtotal	761.2	735.2	721.4	702.2	680.0	661.3	646.9	631.9	615.8	600.3	584.6	568.4	553.5
Purchased Electricity	143.2	130.7	144.9	154.1	152.1	154.3	162.7	168.7	169.4	170.2	171.2	170.6	172.0
Total	1331.7	1267.7	1280.0	1273.4	1239.9	1219.8	1219.4	1212.2	1192.0	1172.3	1152.8	1129.0	1111.4
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)													
Distillate Oil	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05
Residual Oil	0.30	0.40	0.39	0.35	0.33	0.32	0.29	0.28	0.27	0.26	0.25	0.25	0.25
Other Petroleum 2/ Petroleum Subtotal	0.11 0.47	0.11 0.57	0.10 0.56	0.10 0.51	0.09 0.48	0.09 0.47	0.09 0.43	0.08 0.42	0.08 0.40	0.08 0.39	0.07 0.38	0.07 0.38	0.07 0.37
Natural Gas	5.59	5.57	5.38	5.24	5.18	5.07	4.94	4.84	4.77	4.71	4.65	4.59	4.52
Metallurgical Coal	9.36	9.82	8.94	8.35	8.17	7.83	7.29	6.89	6.68	6.48	6.28	6.14	5.94
Net Coke Imports	0.53	0.48	0.52	0.49	0.44	0.42	0.43	0.44	0.44	0.44	0.43	0.42	0.41
Steam Coal	0.90	0.96	0.89	0.84	0.83	0.81	0.76	0.73	0.72	0.71	0.70	0.69	0.67
Coal Subtotal	10.79	11.25	10.35	9.68	9.44	9.06	8.49	8.06	7.84	7.62	7.41	7.24	7.02
Purchased Electricity	2.03	2.00	2.08	2.12	2.11	2.11	2.14	2.15	2.16	2.16	2.17	2.17	2.18
Total	18.88	19.40	18.36	17.55	17.21	16.71	16.00	15.47	15.17	14.89	14.61	14.39	14.10
Carbon Dioxide Emissions 3/ (million metric tons)	121.5	115.7	117.5	117.5	114.5	113.1	113.6	113.3	111.5	109.8	108.1	106.0	104.5
Combined Heat and Power 4/ Generating Capacity (gigawatts)													
Petroleum	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Natural Gas	0.25	0.25	0.25	0.26	0.26	0.26	0.27	0.28	0.28	0.29	0.29	0.30	0.30
Coal	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48
Other 5/ Total	0.85 1.60	0.85 1.60	0.85 1.60	0.85 1.60	0.85 1.60	0.85 1.61	0.85 1.61	0.85 1.62	0.85 1.63	0.85 1.63	0.85 1.64	0.85 1.64	0.85 1.65
Net Generation (billion kilowatthours)													
Petroleum	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Natural Gas	0.41	0.67	0.69	0.71	0.74	0.77	0.81	0.86	0.91	0.95	0.99	1.03	1.07
Coal	1.52	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
Other 5/ Total	3.78 5.73	3.76 6.05	3.76 6.07	3.76 6.09	3.76 6.11	3.76 6.14	3.76 6.19	3.76 6.23	3.76 6.28	3.76 6.32	3.76 6.36	3.76 6.40	3.76 6.44
Disposition													
Sales to the Grid	0.67	0.74	0.75	0.75	0.75	0.75	0.76	0.76	0.77	0.77	0.78	0.78	0.78
Generation for Own Use	5.06	5.30	5.32	5.34	5.36	5.39	5.43	5.47	5.51	5.55	5.59	5.62	5.66
Thermal Output (trillion Btu)	39.5	32.4	32.4	32.4	32.5	32.5	32.6	32.7	32.8	32.9	33.0	33.0	33.1
Energy Input (trillion Btu)													
Petroleum	0.4	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Natural Gas	12.5	14.3	14.4	14.6	14.8	15.0	15.3	15.7	16.0	16.3	16.6	16.9	17.3
Coal	19.9	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4
Other 5/ Total	87.2 120.0	74.7 110.1	74.7 110.2	74.7 110.3	74.7 110.5	74.7 110.8	74.7 111.1	74.7 111.4	74.7 111.8	74.7 112.1	74.7 112.4	74.7 112.7	74.7 113.0
Efficiency 6/	0.492	0.482	0.482	0.482	0.483	0.483	0.484	0.484	0.485	0.486	0.486	0.487	0.487
Power-to-Heat Ratio 7/	0.494	0.637	0.639	0.640	0.642	0.644	0.647	0.650	0.653	0.656	0.658	0.661	0.664

**Table 30. Iron and Steel Industries Energy Consumption**

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2003-2025
Value of Shipments (billion 1996 dollars)	79.14	79.33	80.07	81.06	81.65	82.32	81.97	82.51	82.93	83.21	83.36	1.1%
<b>Energy Consumption (trillion Btu)</b>												
Distillate Oil	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	0.0%
Residual Oil	19.5	18.7	18.1	18.0	18.0	17.8	17.4	16.9	16.3	15.9	15.6	-2.3%
Other Petroleum 2/	5.5	5.4	5.3	5.1	5.0	4.9	4.8	4.7	4.6	4.5	4.3	-2.3%
Petroleum Subtotal	29.0	28.0	27.3	27.1	27.0	26.7	26.2	25.6	24.9	24.4	23.9	-2.0%
Natural Gas	353.1	351.7	351.9	352.4	351.6	351.3	348.0	347.8	347.4	346.4	345.0	-0.2%
Metallurgical Coal	454.8	442.0	429.5	417.4	405.7	394.2	383.1	372.3	361.8	351.6	341.7	-2.8%
Net Coke Imports	31.8	31.1	31.2	31.6	31.5	31.5	30.2	30.2	30.0	29.9	29.6	-0.2%
Steam Coal	52.3	51.5	50.8	50.2	49.5	48.8	48.1	47.5	46.8	46.2	45.6	-1.4%
Coal Subtotal	539.0	524.7	511.6	499.2	486.6	474.5	461.4	449.9	438.7	427.7	416.9	-2.5%
Purchased Electricity	173.5	174.3	176.6	179.8	181.9	184.3	184.0	185.9	187.5	188.8	189.9	1.7%
Total	1094.7	1078.7	1067.4	1058.5	1047.1	1036.9	1019.6	1009.1	998.5	987.3	975.6	-1.2%
<b>Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)</b>												
Distillate Oil	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-1.1%
Residual Oil	0.25	0.24	0.23	0.22	0.22	0.22	0.21	0.21	0.20	0.19	0.19	-3.4%
Other Petroleum 2/	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	-3.4%
Petroleum Subtotal	0.37	0.35	0.34	0.33	0.33	0.32	0.32	0.31	0.30	0.29	0.29	-3.1%
Natural Gas	4.46	4.43	4.39	4.35	4.31	4.27	4.25	4.21	4.19	4.16	4.14	-1.3%
Metallurgical Coal	5.75	5.57	5.36	5.15	4.97	4.79	4.67	4.51	4.36	4.23	4.10	-3.9%
Net Coke Imports	0.40	0.39	0.39	0.39	0.39	0.38	0.37	0.37	0.36	0.36	0.35	-1.3%
Steam Coal	0.66	0.65	0.63	0.62	0.61	0.59	0.59	0.58	0.56	0.56	0.55	-2.5%
Coal Subtotal	6.81	6.61	6.39	6.16	5.96	5.76	5.63	5.45	5.29	5.14	5.00	-3.6%
Purchased Electricity	2.19	2.20	2.21	2.22	2.23	2.24	2.24	2.25	2.26	2.27	2.28	0.6%
Total	13.83	13.60	13.33	13.06	12.83	12.59	12.44	12.23	12.04	11.86	11.70	-2.3%
Carbon Dioxide Emissions 3/ (million metric tons)	103.1	101.6	100.7	100.1	99.3	98.5	97.1	96.4	95.8	95.0	94.2	-0.9%
<b>Combined Heat and Power 4/</b>												
<b>Generating Capacity (gigawatts)</b>												
Petroleum	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	N/A
Natural Gas	0.31	0.31	0.32	0.33	0.33	0.34	0.34	0.35	0.35	0.36	0.36	1.7%
Coal	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	N/A
Other 5/	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	N/A
Total	1.65	1.66	1.66	1.67	1.68	1.68	1.69	1.69	1.70	1.70	1.71	0.3%
<b>Net Generation (billion kilowatthours)</b>												
Petroleum	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	N/A
Natural Gas	1.11	1.15	1.19	1.24	1.28	1.33	1.36	1.40	1.44	1.48	1.51	3.7%
Coal	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	N/A
Other 5/	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	N/A
Total	6.48	6.52	6.57	6.61	6.66	6.70	6.74	6.78	6.81	6.85	6.88	0.6%
<b>Disposition</b>												
Sales to the Grid	0.79	0.79	0.80	0.80	0.81	0.81	0.81	0.82	0.82	0.82	0.83	0.5%
Generation for Own Use	5.69	5.73	5.77	5.81	5.85	5.89	5.93	5.96	5.99	6.03	6.06	0.6%
Thermal Output (trillion Btu)	33.2	33.3	33.4	33.5	33.6	33.6	33.7	33.8	33.9	34.0	34.0	0.2%
<b>Energy Input (trillion Btu)</b>												
Petroleum	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	N/A
Natural Gas	17.6	17.9	18.2	18.6	18.9	19.2	19.5	19.8	20.1	20.4	20.7	1.7%
Coal	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	N/A
Other 5/	74.7	74.7	74.7	74.7	74.7	74.7	74.7	74.7	74.7	74.7	74.7	N/A
Total	113.3	113.7	114.0	114.3	114.7	115.0	115.3	115.6	115.9	116.2	116.4	0.3%
Efficiency 6/	0.488	0.489	0.489	0.490	0.491	0.491	0.492	0.492	0.493	0.494	0.494	0.1%
Power-to-Heat Ratio 7/	0.666	0.669	0.672	0.674	0.677	0.679	0.682	0.684	0.686	0.688	0.690	0.4%

**Table 30. Iron and Steel Industries Energy Consumption**

1/ Fuel consumption includes consumption for combined heat and power.

2/ Includes petroleum coke, lubricants, and miscellaneous petroleum products.

3/ Includes emissions attributable to the fuels consumed to generate the purchased electricity.

4/ Includes industrial-owned generators not classified as combined heat and power, such as standby generators.

5/ Includes wood and other biomass, waste heat, municipal solid waste, and renewable sources.

6/ Efficiency is calculated as the sum of the thermal output and electrical generation in Btus divided by the energy input.

7/ Power-to-Heat is calculated as the electrical generation in Btus divided by the thermal output.

Btu = British thermal unit.

N/A = Not applicable.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports.

Source: 2002 and 2003 nonutility and CHP summer capacity, net generation, fuel use, and thermal output: Energy Information Administration (EIA), Form EIA-860: "Annual Electric Generator Report," 2004 (preliminary). Other 2002 and 2003 data based on: EIA, Manufacturing Energy Consumption Survey, 1998. Projections: EIA, AEO2005 National Energy Modeling System run aeo2005.d102004a.